THE EUPHRATES VALLEY RAILWAY

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THE

EUPHRATES VALLEY RAILWAY.

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1872.

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W. P. ANDREW, Esq.

Sir,

As an old member of the Euphrates Expedition, I have endeavoured to discuss in a fair and impartial spirit the bearing of the evidence laid before the Select Committee of the House of Commons last session upon the Euphrates Valley Railway. It is especially gratifying to see, that so far as it has gone, the great preponderance of evidence given before the Committee, has been in favour of the views you have so long and so persistently advocated. And in testimony of the admiration I entertain for the unflagging energy and unwearied assiduity you have displayed, for a long series of years, in advocating the importance of Railway communication with India, as essential to the maintenance of the power and stability of the British Empire in the East, I beg that you will accept the dedication of the following pages.

THE AUTHOR.

London, *March 12th*, 1872.

THE

EUPHRATES VALLEY RAILWAY.*

THERE it flows—one of the great rivers of the world—hourly, daily, monthly pouring its deep waters along what was once the most fertile and populous centre of the human race, every inch of which is capable of being reclaimed—to wash the walls of a few sleeping towns and villages, to benefit half-civilised Arabs with their camels, buffaloes, and sheep, or to irrigate long lines of date-trees—and nothing is made of it.

Thirty-six years ago an expedition was sent out by an enlightened monarch and a liberal government—liberal in its true sense—to survey this great stream, for the purpose of opening a short, easy, and accessible route to India. The work was performed, the maps and sections are there, but nothing has as yet come of it. A company was formed under the auspices of

* Report from the Select Committee on Euphrates Valley Railway; together with the Proceedings of the Committee, Minutes of Evidence, Appendix, and Index. Ordered by the House of Commons to be printed July 27, 1871.

Mr. W. P. Andrew, a gentleman deeply interested in opening railway communication with, and in, India, but government, whilst subsidising or guaranteeing Indian railways and steam-boat communication, declined to do the same in aid of the link which is necessary to establish the connexion of the two countries. It is not surprising that, although no one has been able to bring any serious or irrefutable arguments against the Euphrates Valley route, or as yet to suggest a better or a more natural one, although general opinion has been in its favour, and it is perfectly known to all conversant with the subject that such a line would not only facilitate communication with our Indian possessions, and thereby give a vast impetus to commerce with the East generally, but that it would also, whilst strengthening our tenure, be in reality the foundation of a new empire, still capitalists and investors should decline to undertake that which from its magnitude (unless, as has been suggested by some, it was carried out by segments at a time), must necessarily occupy some years in its completion, and in the interval afford no interest for the money invested, or traffic returns could be made available as dividends.

Happily, however, government has, after this long lapse of time, been once more aroused to a sense of the great importance of the Euphrates Valley Railway to the commerce of this country and the security of our empire; and a committee of the House of Commons has been sitting to take evidence upon the subject, and will, it is to be hoped, prolong its labours this session, upon a motion to that effect originally made by Sir

George S. Jenkinson. It would appear that the honourable member's attention was first called to the subject by his excellency the Turkish ambassador, Musurus Pasha. Sir George Jenkinson discussed the matter with the Turkish ambassador, and came to the conclusion that the work would be most easily carried out by a joint guarantee on the part of the British and Turkish governments. He also sought for information from documents and persons acquainted with the subject, such as General Chesney and others, who have devoted much time and attention to the inquiry, and the general conclusion he arrived at was, as stated in his own words before the committee, that the Euphrates Valley route is the shortest route, the most direct route, and the most feasible, and, therefore, the cheapest; and it is, moreover, the only route which could ever be assisted, in any material degree, by either this country or the Turkish government. Therefore, looking at it altogether, he thought that practically it is the only line which is attainable at present.

The first public meeting of the select committee was held on the 17th of July, when Sir Henry Rawlinson and General Chesney were severally examined. The first-mentioned gentleman, so well-known for his intimate acquaintance with Oriental geography and literature, gave his evidence mainly in connexion with the various routes that have been suggested or proposed between the Mediterranean, the Black Sea, and the Persian Gulf. The first of these proposed routes, and for which a concession was offered by the Turkish government so long ago as 1866 or 1867, was to con-

nect Constantinople with the Persian Gulf, starting from Scutari, and passing by Ismid (Nicomedia), Kutaiyah, Kara-hissar, Kunieh, or Koniyeh (Iconium), and Kaisêrieh, or Kaisariyeh (Caesareia), to Aleppo, and then down the valley of the Euphrates to Baghdad and Bussorah, and from Bussorah to the Persian Gulf. The distance was estimated at seventeen hundred miles, including a branch from Aleppo to Alexandretta. The difficulties presented by the very peculiar physical aspect of Asia Minor, in the early portion of this proposed line, were discussed in reference to analogous suggestions made previous to the one here alluded to, by Mr. Campbell, Mr. Wright ("Christianity and Commerce, the Natural Results of the Geograpical Progression of Railways," 1849), Dr. Thompson, and Sir R. M. Stephenson, in a pamphlet published in 1856 by Stanford of Charing Cross, entitled, "The Euphrates Valley Route to India, by a Traveller." These difficulties are not insuperable. Nothing, indeed, can be positively stated as insuperable to modern science, backed by a sufficiency of time and capital. But it is essential in such discussions to keep in view whether the amount of time and capital necessary to carry out any particular scheme would not put all question of a possible remuneration out of the field. Any person minutely acquainted with the great central plateau of Asia Minor and its various outlets, whether to the south, through the Taurus, or down to the shores of the Black Sea or the Mediterranean, must be convinced that the approach to that central plateau from Constantinople, which is most feasible and most likely to be remunerative, would be by the high road to the pass

of Hajji Hamsah on the Halys, and up the open valley of that river to Sivas or Sebaste.

The deviation of the route as presented by Sir Henry Rawlinson to the committee, from Iconium to Caesareia, instead of its being prolonged directly by the Gates of Cilicia, is objectionable. A practical knowledge of the country attests that there is no feasible line of approach for a railway from Caesareia to Syria, through Taurus, but that the line would have to return to the said Gates of Cilicia, now known as the Kulak Boghaz. This pass presents some difficulties, especially at one point; but the only ther passes available. through Taurus, that by Marash (Germanicia), that from Malatiya to Besni, and that to Dyarbekir, present still greater. Perhaps Sir Henry Rawlinson meant a branch line from Iconium to Caesareia, which would be a very easy matter. It is difficult to reply in detail in a vivâ voce examination.

In other respects the proposed line, by having a branch from Aleppo to the bay of Alexandretta, or to the bay of Antioch, would be the complement of the proposed Euphrates Valley Railway.

"Mr. Skene, consul at Aleppo, who knows the country perhaps better than most travellers," reports Mr. W. J. Maxwell, in Appendix No. 4, "said to me, and I have his authority for giving his opinion publicly, that 'any *through* line of railway between Constantinople and Baghdad must pass through Alexandretta or Aleppo; and if through Alexandretta, would follow the present post-road, passing through the range of the Taurus, by Gulegh (Kulak), Boghaz

Pass, west of Adanah, where the great interior table-land would be reached. This is probably four thousand feet over the sea.' (Our observations made the uplands at this point about three thousand feet above the level of the sea.) 'It is broken up by great mountain ranges.'" Mr. Skene was also of opinion that "no great difficulty would be met after the Taurus Pass until Iconium would be reached. It would be difficult to Kutiah (Kutaiyah), and still more difficult from Kutiah to Ismid, or from Kutiah to Aideen." As to any line by Dyarbekir, he does not believe it practicable.

A next route noticed by Sir Henry Rawlinson was one proposed by Colonel Herbert, the present political agent in Turkish Arabia. It would leave the Mediterranean at Alexandretta, pass by Aleppo, across the Euphrates at Bir to Urfah (Edessa), and so on to Dyarbekir, turning back by Nisibin to Mosul, and thence following the valley of the Tigris to Baghdad and Bussorah. This route is described as being, perhaps, one hundred or one hundred and twenty miles, or perhaps one hundred and fifty miles longer than the line down the Euphrates Valley, as it makes a considerable détour to the north-east, but it has the advantage of passing through a number of large cities and centres of trade, and lying generally amid settled and populous districts.

The distances here given are underrated. Admitting the distance from Aleppo to Bir, or Birijik, to be about the same as a given point at which the Euphrates Railway would strike the river, still the distance between the two points (about seventy miles), would be all gain to the latter route. Then again it is at least one hundred

and twenty-five miles from Bir to Dyarbekir by Urfah, and it is over two hundred miles from Dyarbekir to Mosul, where a point on the Tigris would be reached, parallel to that attained by a journey of merely some fifty or sixty miles from Aleppo to the Euphrates. To this must be added the still more serious objection that the northern part of the plain of Mesopotamia, between Urfah and Dyarbekir, is either hilly and rocky, or covered with an overflow of rugged basalt, cut through by narrow but deep rivers. Dyarbekir stands in a hilly region, and upon a knoll of the same character. From below Mardin, which has been called the Quito of Mesopotamia, the country is, however, admirably adapted for a railway. As to "large cities and centres of trade," there are only Urfah, Dyarbekir, and Mosul. Bir is a mere town and passage place, Mardin a town, and Nisibin a ruin, that would, however, come to life again. Arbil, Koi Sanjak, and Kirkuk lie to the east of the valley of the Tigris, at the foot of the Kurdistan Mountains; and while the trade of Dyarbekir and Mosul would flow to Aleppo, as it does now, or to the Euphrates Valley Railway, the trade of the latter places, and of regions further east, would flow to Baghdad, also a proposed station on the Euphrates line. There is, then, commercially speaking, little advantage to be gained by the line of the river Tigris, whilst a much greater distance would have to be traversed, and an almost incalculable increase of expenditure would have to be incurred, and that at the same time that the comparatively more settled character of the country could not be made for a moment to weigh against the serious

and fatal objections which lie in the way of such a project being carried out.*

A further alternative was noticed by Sir Henry Rawlinson as suggested by a Mr. Childs. This was to leave the Black Sea at Tereboli, near Trebizond; to cross the mountains to the valley of the Euphrates at Erzingan, where it was to take a steamer and to pass down the Euphrates to the point nearest to Dyarbekir, whence the transit was to follow the Tigris down to the sea by steamer. Sir Henry Rawlinson himself admits as objections to the proposed line, that it is only for two or three months in the year that it is possible to navigate either the Euphrates from Erzingan, or the Tigris from Dyarbekir, and "if a steamer did go down the rivers, it certainly would never come up again." This project further involves first a railway across the mountains from Tereboli to Erzingan, and when what is embraced in that brief expression of "across the mountains" is

* Mr. T. K. Lynch bore testimony (Answ. 777) to the inadvisability of the line by Dyarbekir, as well as Mr. Ainsworth (Answ. 303). Mr. Lynch said such a line would be practicable, but he added: "Dyarbekir is off my main line, and it could be as easily connected afterwards, and there is nothing to be obtained by going to Dyarbekir, and the country is mountainous. Dyarbekir is a small place; there are only about five thousand inhabitants. By going by the Euphrates line along all the rivers flowing into the Euphrates, a communication could be easily made into the trunk line with Dyarbekir and Mosul."

That is to say, by the Khabur and its tributaries, and the Balik-su, or Balicha, the ancient Basileus or Royal River. The line by the Khabur is a well-known old Assyrian and Arabian commercial route, and it is far preferable to a branch line proposed by Mr. T. Macneil (Answ. 415), from Anah to Mosul. While the valley of the Balik-su might be used to bring the commerce of Urfah and Harran to the trunk line at Rakkah on the Euphrates, the old line of the Khabur might be used to bring the commerce of Mosul by the Mygdonius or by Singar to Arban (Habor, Arbonai). The tributaries to the river of Gozan (Gausanitis of Ptolemy), the Jerjub, ancient Cherub, the Zirgan, and others, point the way in a similar manner to Suwerek (Seleucia), to Dyarbekir, to Ras-al-Ain, and to Mardin. All these Mesopotamian streams unite to form the river of Habor, Chaboras, or Khabur, which flows into the Euphrates at Karkisiyah (anc. Circesium). The towns and stations existing in former times along this line are all enumerated by the Arabian geographers.

realised, the mind stands aghast. The plateau of Erzerum is from five thousand five hundred to five thousand seven hundred feet above the level of the sea. It has to be reached from the sea across a chain of mountains which attain a still greater elevation, and which rise abruptly from the littoral country a few miles from the sea. The approach by the valley of the Tereboli river to Gumush Khaneh may possibly diminish these difficulties, but they must still remain very great. A second railway would have to be carried from the Euphrates to Dyarbekir, which is exposed to the same objections as Colonel Herbert's proposed route. Indeed, as Sir Henry Rawlinson himself says, "that particular part of the country being, as I believe, absolutely impracticable for a railway." There are other objections of detail to the scheme, such as the character of the country about Erzingan and Kapan Madan, and more especially the falls near Gergen Kalehsi (Juliopolis), where the Euphrates forces its way through Taurus; but such discussions are needless where a project is so utterly infeasible on general grounds. The now celebrated M. de Moltke explored the last-mentioned portion of the river, in view of transmitting the material of the Turkish army, before it crossed from Malatiyah into Syria by the Besni Pass, and previous to the battle of Nizib, and found it to be utterly impracticable.

Sir Henry Rawlinson also made mention of another proposed route from the Black Sea, which was to start from Trebizond, to ascend over five thousand feet to Erzerum, to be prolonged thence to Van, and then

down the Betlis-su to the Tigris, above Mosul, and along the valley of the same river. The writer has explored every one of the passes of Taurus, and excepting the pass of the Pyramus to Marash, he can confidently assert that none offer greater difficulties than that of Betlis. Betlis itself, at an elevation of five thousand four hundred and seventy feet, is built amid perpendicular terraces of lava. The country southwards is a succession of mountainous ascents and descents, and Macdonald Kinneir stigmatised the Derej Tusul Pass, near Kufra, as the worst he ever met with.

"This line would indeed," Sir Henry Rawlinson remarked, "cross the range of the Taurus in about its most difficult and impracticable portion, and I should think that it would be utterly impossible to effect it, the country being cut up by a succession of precipitous ravines and mountain torrents and impracticable defiles."

It is to be further observed, in connexion with these almost impracticable lines from the Black Sea, that the opinions of almost all who gave evidence was opposed to them, as compared with a terminus on the Mediterranean, upon the grounds that not only would such a terminus be more exposed to interruption in case of misunderstandings arising between Russia and Turkey, but that whilst in case of necessity troops could be sent directly from England to Syria, they would have to reach a port on the Black Sea to pass by the Dardanelles and Bosphorus, the sea itself possibly in possession of an inimical fleet, or they would have to be sent across

Europe through several different countries, the relations with which might be disturbed at the very moment of an emergency.

Sir Henry Rawlinson also briefly touched upon the important question of connecting Europe directly with India, and he noticed in connexion with such a project three possible lines; one from Constantinople by Erzerum to Teheran, Mushed, Herat, Kandahar, and the Bolan Pass; another by Angora, Sivas, Dyarbekir, Kifri, Kermanshah, and Hamadan to Teheran; and a third, a prolongation of the Euphrates Valley route or the Tigris route, by the sea-coast to Kurrachi. These projects are upon so extensive a scale that it is impossible to enter upon them here, even if we possessed the knowledge of the countries east of Kurdistan necessary to do so with effect, which we do not. Sir George Jenkinson pertinently asked in connexion with these projects: "If the difficulty the Euphrates line of eight hundred and fifty miles has always had to contend with has arisen from want of funds, and that difficulty has hitherto been found insuperable as regards a perfectly flat line, which has been surveyed, would not that difficulty apply with tenfold force to lines over mountains and through ravines, and a length of from three thousand to three thousand five hundred miles?"

Sir Henry Rawlinson's reply was noteworthy: "It would no doubt apply to a certain extent; but a through line would involve much larger, and higher, and more important interests, which I think might fairly be taken into consideration as against the mere difficulties of raising a larger sum of money; that is to

say, it would of be immense importance to India to be in continuous railway communication with Europe, whereas it would be of very trifling importance merely to have the territory bridged over between the Mediterranean and the Persian Gulf by a railway, while there was still a long sea voyage, or a considerable sea voyage, on either side of the Euphrates Valley Railway."

There is much truth in this. There can be no question as to the immense importance to India, and even to China, of a continuous railway communication with Europe, and such a thing will no doubt be one day brought about, unless the traffic is turned in another direction by the opening of American trans-Pacific and Atlantic lines, but in the mean time, the advantages presented by the Euphrates Valley Railway are by no means so trifling as Sir Henry Rawlinson thinks. The line would in all probability be a portion of any more extended scheme that could be carried out, especially to Kurrachi; and in as far as the political interests of Great Britain are concerned, it would be more advantageous to her to have a railway, of which she could hold the two termini, than to have a part of a long continuous line, any portion of which, European or Asiatic, might be interrupted by unforeseen complications. In the same sense, a prolongation on the one side to Constantinople, and on the other to Kurrachi, would be safer than a more northerly line.

General Chesney* was also examined upon the dif-

* How sad it is to have to place on record, that in the brief interval between the first printing and reprinting of these few pages, this gallant officer should have been removed from us for ever!

Justice to the memory of this distinguished and meritorious officer, who

ferent projects for establishing railway communication between the Mediterranean, the Black Sea, and the Persian Gulf, and he gave it as his decided opinion that the line of the Euphrates from the Mediterranean is the best route, and the only one desirable for the English nation to construct. It might start from either Alexandretta or Seleucia, but he preferred the latter. General Chesney was also in favour of a point near Bussorah as a southern terminus. In reply to other questions having reference to a Black Sea line, General Chesney advanced, from practical knowledge of the country, the same objections previously detailed, with the additional one, that Trebizond is only an open roadstead, and, he added, such a line would be highly advantageous to Russia, but of little or no service whatever to this country, and the Tigris line would be a very difficult and very expensive one. When cross-questioned upon the point of the comparative strategic importance of a terminus on the Mediterranean, the veteran leader of the Euphrates Expedition, after clearly and distinctly enunciating the advantages of the latter route as the most direct, the most easy, and the most

first carried out an expedition to the river Euphrates, but who died before the dream of his life became a reality, will no doubt be done elsewhere.

To the author, who accompanied him in his long, arduous, and perilous expedition, his memory is, however, especially endeared by many acts of personal kindness and friendship, shown amidst trying circumstances; as also by the high regard, which he could not but feel, for the ability shown in carrying out an expedition in, at that time, little known regions, amidst all kinds of difficulties, and for the dauntless courage with which he met, and the perseverance and resolution with which he overcame these obstacles.

It was one of General Chesney's favourite axioms, that nothing is impossible where there is a will, and he carried out this principle with inflexible determination, yet with the good feelings of a practical Christian, ever ready to make allowances for the prejudices of the half-civilised people with whom he had to deal, and with a lively and undeviating anxiety for the welfare and happiness of those who were placed under his command.

feasible, and as having both termini on the sea, where they would be under the entire control of Great Britain, pointedly added, "You would lose the Black Sea instantly. That is a thing to look after, and the Black Sea is half gone already." General Chesney was also as explicit upon the commercial advantages of the Euphrates Railway as upon its advantages for the transport of troops either to or from India. Nothing could be more clear or satisfactory than his evidence upon these subjects. He also bore strong testimony to the friendly disposition and character of the natives. The Arabs, he said, might look to some small gratuity, but they need not be subsidised. They would be willing also to labour. As to the climate, it would be better than that on the Suez Canal and the Red Sea. The Euphrates line would also have local traffic. The Suez Canal has none. Mr. Palgrave was quoted as having said that the country is sinking every day more hopelessly into poverty; nor is there any hope of amelioration under the existing land legislation. Turkey in Asia is certainly not an improving country, but General Chesney showed by such commercial returns as he had at hand that the existing commerce is considerable. The general has shown the same fact in detail in his works, as has also Mr. Andrew in his "Euphrates Valley Route to India," and in other works. Further, although the commerce of Aleppo—the most important of all in North Syria—has passed in great part from British into other hands, still wherever Europeans have established themselves, as notoriously the Lynch's at Baghdad, and Mr. C. Rassam at Mosul, the local com-

merce has undergone a prodigious impetus. Sir Charles Wingfield objected to the breaking of bulk at Seleucia and on the Persian Gulf, but this objection, as General Chesney pointed out, and as Mr. Lynch admitted, only applies to weighty and bulky merchandise, which can be conveyed at a cheaper rate even from Baghdad by the Suez Canal than it probably would be by the proposed railway. This, however, is very conjectural, and at all events would not affect the ordinary traffic on the railway. Sir Charles Wingfield further did not think that in a sanitary and other points of view, excepting in very great emergencies, where the saving of a week might be of great importance, it would be worth while to send troops by a long railway journey, when in seven days more you could send them by a sea voyage. General Chesney replied to this, "that the Euphrates Railway route is safer in a sanitary point of view than the Red Sea, and that the railway journey would only be about three days from sea to sea." The civil and military officers, for example, in India would be very glad to save the expenses entailed by seven days' loss of time in going from England to India, or vice versâ. But if the speed between the two termini could be made to attain anything like that at which the service is performed between London and Edinburgh and Glasgow, it would not require more than two days and a night to travel from the Persian Gulf to the Mediterranean Sea. General Chesney estimated the seven days' gain not upon the railway alone, but upon the whole line. The length of the railway would be about eight hundred and fifty miles, and there would

not be more than five hundred miles of this along the actual valley of the Euphrates. Sir Charles Wingfield also objected to the proposed line that it is a sort of law, in railway operations, that through traffic alone, on a very long line of railway, will not pay. This after it had been fully explained that there would be local traffic on the Euphrates line, and the following interlocution had taken place between Mr. F. Walpole and General Chesney:

163. "Sir George Jenkinson has asked you about local traffic; you, as an engineer officer, are, of course, aware of the Pacific Railway?"—"Yes."

164. "I believe that that railway now almost pays?" —"Yes."

165. "There is no local traffic upon that railway?" —"No."

General Chesney was subjected to a sharp cross-examination upon the details of the estimated saving of from seven to ten days. These details could not be given satisfactorily from memory, but the General supplied them afterwards from his own memoranda, which showed that the difference in favour of the Euphrates line is, from London to Bombay, five hundred and twenty-eight miles, and from London to Kurrachi eight hundred and three miles.

In reply to Sir George Jenkinson as to whether General Chesney did not consider that the two lines (that by the Suez Canal and that by the Euphrates Valley) might work together, and mutually assist each other rather than they should be antagonistic to each other, the General replied: "Yes; the best proof which

I can give of that is, that I proposed originally, in 1829, that both lines should be opened together, so that I never kept to one as an exclusive thing; I was of opinion that they would help one another considerably."—"One line (it was further suggested) might be used for the conveyance of goods, and the other for the conveyance of passengers?"—"Yes (was the reply), and you want both; there are people and commerce enough to occupy both, and you want both."

The committee sat for a second time on the 20th of July, when Mr. Ainsworth and Mr. Telford Macneil were examined. Mr. Ainsworth expressed his conviction, from a personal exploration of the routes through Asia Minor, and of all the great passes through Mount Taurus, from Kurdistan to Cilicia, that the proposed line of railway from the bay of Antioch to the Euphrates and down the Euphrates, was at once the most feasible and the most economical. The terminus might be at the foot of Mount Casius, a little south of the embouchure of the Orontes, the bay of Antioch being shallower and rocky off the ancient port of Seleucia. Seleucia lies at the north end of the bay. The landing-place of the Euphrates Expedition was three or three and a half miles south of Seleucia, but north of the Orontes; the proposed pier, jetty, or breakwater would be south of the Orontes, near the foot of Mount Casius, at a spot known to the natives as Karabujak. The modern village of Suwaidiyah lies on the hills eastwards, between Seleucia and the Orontes. As a port, Mr. A. thought that a protective jetty would suffice. The railway might be carried thence either by

the road north of the Orontes, used by the Euphrates Expedition, or by the valley of the Orontes, but the latter presented some difficulties. The only other difficulties lay in the limestone district between the lake of Antioch and Aleppo. Beyond, with the exception of a range of basaltic hills which are traversed by the Euphrates, near Zenobia,* no difficulties occur, and at this point a broad margin has been left between the hills and the river bed wide enough for many railways. Mr. A. considered the proposed line from Alexandretta by the pass of Bailan, or the Gates of Syria, would entail such heavy expenses, that even if a line was brought from Constantinople to Alexandretta by the Kulak Boghaz, or Gates of Cilicia, it would be preferable to keep along the coast to the bay of Antioch rather than to carry the line over the pass of Bailan. "Seleucia," Mr. A. said, "is not only the natural gate to the East, formed by nature, and the entrance into Hamath, as it was called in ancient times,† but when you try to carry roads across Asia Minor, and across the Taurus, and across the countries to the north, you are carried back by the force of physical circumstances to that entrance into Syria, to the south of which is also one continuous chain of

* That the remarkable ruins at the southern end of this pass, now known as Zelebe or Zilibi, represent a town named Zenobia, after the celebrated Queen of Palmyra, is shown by the account given by Procopius of the campaigns of Belisarius, where Chosroes is described as marching in three days from Circesium to Zenobia (Bell. Persic., i. 18; ii. 5). Queen Zenobia is described as flying to the banks of the Euphrates on the approach of Aurelian to Palmyra (Gibbon's Decl. and Fall, chap. xi.)

† Hamath-Zobah, afterwards Epiphania, and now Hamah, appears to have been a different place from Hamath, for the Talmuds, the Jewish Targums, and the ancient Syriac version of the Old Testament, all explain Hamath by Antioch —a city which must have had a name prior to the conquests of Alexander.

hilly country, and hence it is that it is the only natural opening into the interior. A line of railway carried from Constantinople by the Gates of Cilicia, as proposed, would of necessity have to join the proposed Euphrates Valley Railway: it would be a complement to it."

Question 298. "When you got to the Euphrates, your line would turn down and follow the course of the Euphrates?"—"Precisely so, saving the curves."

299. "What would be the total length of it?"—"I believe about five hundred miles."

What was here meant was the total distance to be followed along the Euphrates Valley from Balis or Jaber Castle to the alluvial plains of Babylonia, where the line would turn off to Baghdad. The total length of the proposed Euphrates Valley Railway from the Mediterranean to Bussorah or Mohammerah would be about eight hundred and fifty miles, and more, if prolonged to Bushire on one side of the Persian Gulf, or to Grain or Koweit on the other. When Mr. Ainsworth describes the *Hawi* or plains along the banks of the river in its upper portions as fertile, and the country beyond as desert, the latter word must be accepted in the sense of a wilderness, not of arid or sandy plains. There is almost always vegetation in the wildest regions of Syria or Mesopotamia. Xenophon's description of old, of "a country full of wormwood, if any other kind of shrubs or plants grew there, they had all an aromatic smell, but no trees appeared," is as nearly accurate as can be given in modern times; there is vegetation, but it is of a peculiar character, and it is very questionable if any portions of such plains could

be reclaimed, except where there is a plentiful supply of water for irrigation. Mr. A. also spoke favourably of the Arabs to be met with along the valley of the Euphrates, as open to conciliation; and he added, "Probably it may be necessary sometimes to subsidise some of the shiekhs to a small extent; but the mere fact of carrying a railway through the country would bring the persons who were carrying out that undertaking into constant contact with the Arabs, and would establish a friendly feeling with them; so much so, that they themselves would preserve a work in which they naturally must be led to take a part either as labourers or as providers of the necessities of life to those who were carrying out the undertaking." Mr. A. was also examined upon the point of opening the ancient harbour of Seleucia, and he said that no doubt a large basin might be excavated close to Seleucia (or, in other words, the old harbour might be enlarged by excavation), but he was not prepared to say if such an undertaking would not be more expensive than constructing a harbour at the foot of Mount Casius, protected by a breakwater. He also gave testimony upon the comparative advantages of a harbour in the bay of Antioch over that of Alexandretta, and upon the centralising of the commerce of North Syria and Mesopotamia at Aleppo. This indeed, owing to the difficulties of communication with Constantinople, extends to beyond the Taurus in many districts, as was found to be the case in the valley of Gurun and Derendah, near Malatiyah.

A change came over the prospect with the examina-

tion of the civil engineers. Mr. Telford Macneil, who had been engaged with Sir John Macneil in conducting some of the surveys upon the coast of the Mediterranean with a view to the Euphrates line, at once declared himself strongly in favour of Scanderoon (Iskendrun) or Alexandretta as the point of debarkation. The harbour there is at the head of a gulf, and well sheltered. All that would be necessary would be a landing-place. The point suggested by Mr. Ainsworth at the foot of Mount Casius had been surveyed and given up. It would require a considerable amount of work, and not be a good harbour when done. This, it is to be suspected, applied to a site suggested by Sir John Macneil at the immediate foot of Mount Casius, and not to the point suggested by Mr. A., which was on the level between the Orontes and Mount Casius. It appears, however, from Mr. Telford Macneil's evidence, that no harbour was projected in the bay of Antioch, but it was proposed to convert the Orontes river into a navigable river for about a mile up, two piers to be thrown out across the bar, one on each side of the river. No wonder that such a project should have proved more expensive than a jetty at Alexandretta.

Granting the superiority of the bay of Alexandretta over the bay of Antioch, which it is impossible to dispute, there are expenses connected with the selection of such as a point of debarkation, as well as with any given point on the other bay. First, Alexandretta is not healthy, and it would require an estimated expenditure of from two to three thousand pounds to drain it. In the next place, the railway would have to be

carried over the Bailan or Balan Pass, to an elevation of two thousand one hundred feet above the level of the sea, by a mean gradient of one in twenty-one, and a maximum gradient of one in thirteen.

399. (Sir Stafford Northcote.) "With what gradients upon lines well known, and already in existence, would you compare that?"—"I think that the best comparison would be with the Mont Cenis, and there the gradients are very much worse."

400. (Sir C. Wingfield.) "That is on the Fell system?"—"Yes; and I think that this should be on the Fell system for fifteen miles, but not on the Fell gauge, but a continuous gauge all the way through of four feet eight and a half inches."

Little did General Chesney, when he landed the material of the Euphrates Expedition from the *George Canning*, aided by the officers and crew of H.M.S. *Columbine*, and conveyed the segments of steam-boats, boilers (over two tons in weight), and a ponderous diving-bell, from thence by a comparatively open road to the Euphrates, dream that it would in future days be proposed to carry a railway by another road over a mountain pass comparable with Mont Cenis! It is not that the pass of Bailan is actually comparable with Mont Cenis in elevation, but the gradients for the two thousand one hundred feet are. Mr. W. J. Maxwell, one of the civil engineers employed on the same survey, spent in fact some time upon the Mont Cenis Railway on his way to Syria, his instructions being that there were not to be any curves or gradients upon the

proposed line more difficult than those upon the Mont Cenis Railway. (Appendix No. 4.)

The pass of Bailan—the Gates of Syria—although only two thousand one hundred and seventy feet in elevation, is a very formidable and rocky pass. The most common rocks are clay-slate, sandstones, and limestones ("Ainsw. Res.," p. 317); the schists or shales predominate so on the south side of the pass that no road is carried that way, but the town of Bailan (the Pinara of Pliny and Ptolemy, Erana of Cicero, and Pictanus of the Jerusalem Itinerary), near the summit of the pass, is on a firmer basis, with solid approaches. The Mosque was built, according to the Mecca Itinerary, by Sultan Selim, and the Khan by Sultan Sulaiman the Magnificent. There are also remains of a causeway, of an aqueduct, and of a bridge appertaining to the time of the Romans. ("Lares and Penates; or, Cilicia and its Governors," p. 263.)

As opposed to this we have a comparatively open country from the bay of Antioch to the city of same name. A line of levels was carried by Lieutenant Murphy, R.E., and Mr. W. T. Thompson, from the shores of the Mediterranean to the Euphrates, and the section given in the maps which accompany General Chesney's great work on the Euphrates Expedition shows that the elevation between the sea and Antioch does not come up to five hundred feet. If, after Alexander the Great founded Alexandreia ad Issum, now Alexandretta, or the more ancient Myriandrus was named after the victor at Issus, the Macedonian kings

of Antioch—his successors—founded the port of Seleuceia, or Seleucia Pieria, on the bay of Antioch, it could only be because that bay was more accessible than that of Issus or Alexandretta, and that the facilities of access overbalanced the superiority of the bay of Alexandretta, if there was or is any real superiority. All history, and the magnitude of the ruins, attest to the importance of Seleucia Pieria as a port in the time of the Macedonians and of the Romans. It was also of great importance, in a military point of view, during the wars between the Seleucidæ and the Ptolemies. (Polybius, v. 58—60.) St. Paul and Barnabas embarked thence for Cyprus on their first mission to Asia Minor (Acts, xiii. 4.)

The harbour of Seleucia Pieria is two thousand feet long by twelve hundred feet wide, occupying an area of forty-seven acres, and it was in fact as large as the export and import basins of the East and West India Docks together. The inner port is entirely excavated, and its canal is one thousand feet long; the area of the outer port is about eighteen thousand feet square, and it affords good shelter, but is obstructed by sand. There are two moles, two hundred and forty paces apart, constructed of enormous stones, and a pier called that of St. Paul.

Captain W. Allen, R.N., to whose work ("The Dead Sea, a New Route to India," &c.), we are indebted for the above figures, after remarking that "The best and most obvious natural highway between Europe and the interior of Asia—that is, where there are the least obstructions—is through the lower valley of the

Orontes and by Aleppo, the basin of which is separated from that of the Euphrates and Tigris—the vast plains of Mesopotamia—by hills of very moderate elevation, such as would be easily surmounted even by a railroad," adds, apropos of the reopening of the harbour of Seleucia, "it may be asked why I propose to construct, or rather to reconstruct a harbour on a coast where not only is there no commerce, but where there is even a very small population in scattered and poor villages. Although this is but too true, the original and natural elements of prosperity, which in former times required such an outlet, still remain in the inexhaustible fertility of this wonderful country. This may be said to comprise, not only the neighbouring rich valleys of the Orontes and Bekaa, to which the cities of the Tetrapolis and many others owed their origin and rapid prosperity; but it was the channel through which flowed the riches of Mesopotamia, which gave birth to a Nineveh and a Babylon; and even the wealth of Persia and the furthest east have had and still may find an emporium in Seleucia. The great fertility of Mesopotamia was carried to its utmost limit by means of the numerous canals for irrigation with which the country was everywhere intersected; some of the largest of these were navigable. They excited the wonder and interest of Alexander the Great, who examined them personally, and 'steered the boat himself.' He employed a great number of men to cleanse and repair them. 'Of all the countries I know,' says Herodotus, 'it is without question the best and the most fertile. It produces neither figs nor

vines, nor olives, but in recompense the earth is suitable for all sorts of grain, of which it yields always two hundred per cent., and in years of extraordinary fertility as much as three hundred per cent.' (Clio, p. 195, Fr. Trans.).

"These advantages inspired ancient rulers, merchants, capitalists, and engineers to construct works to which neither the destructive power of man, nor the convulsions of nature during more than two thousand years, have been able to do irreparable injury. It is truly an enduring monument of the well-directed energies of its founders, and has vainly invited their apathetic successors to profit by so valuable a legacy.

"The commerce of the rich countries I have alluded to has, indeed, never ceased; for although almost annihilated by the discovery of the Cape of Good Hope, which enabled a maritime nation to divert the greater part of that route, some portion still flows languidly by a perverted course and an inferior outlet, owing to the neglect of this, its natural channel and emporium. Thus, the present trade of the East, centering in Aleppo, is carried on by means of camels and mules over the mountain pass of Bailan—the Syrian Gates—and embarked at the unhealthy and *inconvenient* port of Skanderún, at the head of the gulf of the same name.

"The produce of the great basin of the Euphrates and the Tigris, including Persia and the nations on the southern slopes of the Taurus and Caucasus, demands an outlet. The natural one is of course the Persian Gulf; but the stream of commerce does not set that way, the demand being in the west. Providence has

given the means, which were fully profited by in former times. The greater development of the present day does not find the ocean route sufficient, and the time may come when its increasing exigencies may stretch its iron tentacles even across Mesopotamia. These are visions of the future; which, however, daily experience proves are nearer to the present than any one dares to imagine. Leaving these to be unfolded by time, the present facilities are amply sufficient for the present resources.

"The country possesses in itself locomotive power to an enormous amount, which is produced and wasted, waiting century after century for employment. I mean in the thousands and thousands of camels—ships of the desert—that live only to crop the luxuriant herbage of the wide countries of which they might convey the more valuable productions; by a sluggish current, it is true, but sufficient in amount to fill more and greater marts and ports than Seleucia, and to call forth the swiftest energies of steam to carry off its slow and steady influx. In addition to all this, by the employment of their camels, the wandering Arab tribes would be reclaimed to civilisation and religion.

"We may see what can be expected of the revival of commerce in these rich countries by what has been done at Bairut; where, with a port that affords less facilities for shipping goods than even Skanderún, the town has become three times as large as it was only twenty years ago. (This was in 1855. The progress has been still more remarkable of late.) But Seleucia, with a port where ships could load and unload at the

quays without the tedious intervention of boats, and being safe from the delays of bad weather, would draw to itself the trade of all Aleppo, to which city a good road could be made, and eventually a railroad, as it has been ascertained by General Chesney's valuable and careful survey that there are no obstacles to the construction of one.

"These fertile tracts now lie waste and unprofitable, except for imperfect and desultory cultivation by the hordes inhabiting the mountains on their borders, who, through devastating wars and a long series of bad governments, are reduced to such a condition of abasement, both physical and moral, that they draw but the merest necessities of food and clothing from the varied and inexhaustible bounties of nature by which they are surrounded. With security and encouragement, however, they would not only become active cultivators of the raw material, and increasing consumers of it when returned to them in a manufactured state, but they would be zealous disseminators in regions which are now, from various impediments, inaccessible to British enterprise.

"If the better outlet were established, which the restoration of the fine harbour of Seleucia would afford, it is probable that many of the merchants of Aleppo, especially the Franks, would be induced to settle here, by the greater convenience they would find for their transactions, and by the greater chances of security for life and property here than at Aleppo, where they are in constant danger from the turbulent and fanatical

population of that city, of which there was a melancholy instance in the autumn of 1850.

"The fine scenery and beautiful climate of the valley of the Orontes might also attract emigrants or speculators from England, while the native population of the north, or right bank of the Orontes—who are all Christians, and though industrious and well-disposed are poor and stationary on the soil—would have energy and elasticity imparted to them by the example of settlers and the rewards of increasing prosperity. So that from these germs improved grades of society would soon arise to emulate the glories of ancient Seleucia. Such a result could not but be beneficial to the Turkish government, as it would bring great increase of revenue to its coffers from regions now yielding little or none. It would add to the strength of the empire, and be the means of imparting vigour to distant provinces, now exhausted and languishing, in the efforts made for the benefit of the capital."

General Chesney and Captain W. Allen, R.N., both estimated the expense of reopening this port to navigation, chiefly by the means formerly used by the inhabitants, of letting down the winter floods by the ravine. Strabo tells us, indeed (xvi. 2, 8), that the ancient name of the place was Udatos Potamoi, or "Rivers of Water," descriptive of these mountain torrents.*

* The extensive and remarkable ruins at Seleucia Pieria have been described by Pococke, by General Chesney in his "Expedition to the Euphrates," by Captain W. Allen, R.N., "The Dead Sea, a New Route to India," vol. ii. p. 210, *et seq.*, and in "Lares and Penates; or, Cilicia and its Governors," p. 268. There is a very interesting engraving in the latter work of the valley

"The great advantages to be gained by opening this port are" (to quote "Cilicia and its Governors," p. 269), "that it is nearer at hand than that of Alexandretta; that it avoids the difficult navigation of the Gulf of Issus; that whereas Alexandretta is infamous as one of the most unhealthy spots on the coast of Syria, and hence few can be induced to reside there, Seleucia is a comparatively healthy spot, and would, if opened to commerce, soon become in all probability a flourishing town; that the road from Seleucia to Antioch, Aleppo, and the Euphrates is comparatively open, while that from Alexandretta has to cross the formidable Syrian Gates—the mountain pass of Bailan—between Amanus and Rhosus; that while Cilicia is constantly disturbed by local dissensions and the rebellion of races, the neighbourhood of Seleucia, chiefly tenanted by peaceful Christians, is remarkable for its tranquillity and security; and, lastly, Seleucia would constitute the safest harbour (especially for steamers) on the whole coast of Syria, and would, from that circumstance, and from its greater proximity to Antioch and Aleppo, entirely supersede the ports of Bairut, of Tripoli, and Latakiyeh (and, it might have been added, of Alexandretta). The same circumstances that have existed from the period of Mr. John Barker's settling here ('Cilicia and its Governors' was in part written by Mr. Barker's son, W. Burckhardt Barker, long time

of the Orontes, with the bay of Antioch and Mount Casius in the background, from a sketch by Mr. C. F. Barker, which gives an excellent general idea of the valley. So also with regard to the illustrations in General Chesney's large work.

a resident on the spot), and which induced General Chesney to adopt it as the site for landing the steamboats and equipments of the Euphrates Expedition, still exist; and at a very moderate outlay Seleucia might be again rendered what it once was, the most capable, the most flourishing, the most fertile, the most populous, the most wealthy, the most beautiful, and the most healthy port of Syria."

The most important consideration in favour of a port or place of debarkation in the bay of Antioch after those of feasibility, of economy, and of an open road, is that it is self-contained. It is protected on one side by Mount Casius and its offshoots towards Antioch, and on the other by Mount Rhosus and its spur towards the sea, known to the ancients as Mount Coryphæum, and whence the surname of Seleucia Pieria, or the "Stony," and now called, from its ruggedness, Ras Khanzir, or the "Boar's Head." The valley of the Orontes, whilst it presents the easiest opening from the Mediterranean into Syria, along the whole coast, is indeed, at the same time, the most secluded, the least liable to interference from without, and the most easily defended.

Alexandretta, in contrast with Seleucia, has never been a town. The superior genius of Alexander has, it has been said, been shown in the selection of Alexandreia ad Issum and of Alexandreia, the Hellenic capital of Egypt. But it does not appear from the records of antiquity or of modern times, that the former ever prospered. It is true that it has been for many

years the port of Aleppo, and factories or stores were once established there, but such is the unhealthiness of the place that no one lives there who can help it. In Pococke's time it was only "a miserable poor town that has rather the appearance of a small village." "The air," says the learned doctor, "causes a sort of lingering disorder, often attended with a jaundice, and if they do not change the air they commonly die; it also often throws persons, when they first come, into violent and mortal fevers." "The Europeans live most in Bailan, and always sleep there, and if by accident they are obliged to lie here, it is worse than if they had stayed in Scanderoon all the summer." When Niebuhr visited it, it contained only sixty or seventy mean houses. "Alexandretta is now the tomb of all who inhabit it for any length of time without any change of air." ("Lares and Penates," p. 114.) Lieutenant Murphy, R.E., Mr. W. Thomson, and the writer, were all three seized with a violent fever whilst engaged in surveying the coast, and were glad to take refuge on board a merchantman lying in the harbour. This was in 1835, in the time of M. Martenelli's agency. In 1840 the writer found the place somewhat improved under Mr. Hayes. ("Trav.," &c., p. 92.) It is proposed to drain the place, and thus render it healthy, at an expense of some two or three thousand pounds. But it is questionable if this can be effectually done, as part of the marsh appears to lie below the level of the sea. At all events it was tried by Ibrahim Pasha without success. Possibly, if the course of the waters from the

pass of Bailan and Joseph's or Jacob's Spring were diverted, something might be done, but it is doubtful if the unhealthiness of the site is not in part connected with its situation, as in the case with Tarsus, as well as with the existence of neighbouring marshes.*

A railway by the pass of Bailan would, it appears from Mr. Telford Macneil's evidence, have to descend at the same rate to the plain of Antioch as it ascends from Alexandretta. It would also be carried across the plain to the north of the lake of Antioch, till at a distance of forty-seven miles from the sea it would meet the range of limestone hills which divide the plain of Antioch from the plain of Dana. The great objection to this portion of the line is that it does not include the town of Antioch in its progress; other objections present themselves in the fact that the plain north of the lake, near the Kara Su, is at times flooded—so much so, that there are at that point the remains of an extensive

* The marshes in the neighbourhood of Iskenderun, of such melancholy celebrity for their fatality to Europeans, appear to occupy a spot taken from the bay by the gradual accumulation of gravelly detritus, causing a gradual increase of land, ultimately filling up the inlet and shutting out the sea, while at the same time the interior being lower than the bank of detritus on the shore, has caused the waters of abundant springs—Jacob's (or Joseph's) Well—to spread themselves over the land. These have, however, in later times been much drained. At present the marsh is formed of a boggy soil, containing much iron and mud, with anodontæ and other fresh water shells; while below, beds of sands and of marls, with recent marine and littoral shells, were turned up in digging the drain.

The building called Godefroy de Bouillon's Castle would indicate a change in the condition of the soil; and in an old Italian chart the author has seen it is marked as close to the shore, from which it is now nearly a mile distant. Major Rennell proposed an examination of the state of the castle, in order to compare its height from the present level as compared with that reported by Mr. Drummond about seventy years ago. The difference of level, however, in alluvia deposited in a scarcely tidal sea, does not in the intervening valleys indicate the increase of new lands so much as the difference in horizontal distance. (Res. in Assyria, &c., p. 319.)

causeway raised on arches, known as that of Murad Pasha. The direct prolongation of the line eastward would also bring it in contact with the worst portion of the limestone hills. To obviate this, Mr. T. Macneil would carry it southwards to the pass of Sansareen, or Kassara-al-Benal, or it is to be supposed to about the same point it would be carried if passing from Antioch to Aleppo south of the lake. Mr. Telford Macneil gave evidence that to make a good harbour at the Orontes "as we propose" (that is, converting the Orontes into a navigable river), would cost half a million of money, and a railway to a common point, beyond Bailan or Balan Pass, would cost five hundred and thirty-two thousand pounds more, as against the cost of the Balan line to the same point, namely, four hundred and fifty-five thousand pounds. A railway over the Balan would actually be cheaper than a railway up the Orontes to that same point."

457. (Sir C. Wingfield.) "How comes it to be cheaper, because one goes over a much more difficult ground than the other. Leaving out the harbour, you say that a railway over the Balan would be cheaper?" —"Yes."

458. "How is that, when it has to go over a pass, and the other line goes over level ground?"—"It is very easy to understand it. This is the Mediterranean, and it is cut off from the inland by a high range of mountains all along the coast, *and the only outlet is that by the river Orontes* (the italics are ours), which goes through the mountains; and in order to go up there,

you have to cross the river very many times; it is a large river with considerable floods. I have the details of the plans, and the matter has been worked out correctly, so that I am speaking with confidence."

459. (Mr. F. Walpole.) "Had you not forty bridges and culverts by the survey?"—"Yes."

The comparison here made, it will be observed, is not between the expenses of a line from the Mediterranean to Aleppo by the *valley* of the Orontes, but by the banks of the river Orontes, with a line by the Bailan Pass. In the first place, the rendering the mouth of the Orontes navigable would appear to be objectionable on the score of expense alone. Such an operation would, it is estimated, cost half a million of money, whereas laying aside the question of a jetty, General Chesney and Captain Allen, R.N., estimated, we have seen, the cost of reopening the ancient harbour of Seleucia at only thirty thousand pounds, which would be actually less than the expense of constructing a jetty at Alexandretta, the construction of a landing-pier at which place is estimated by Mr. Telford Macneil (Ans. 432) at fifty thousand pounds.

But where is the necessity for following the banks of the river Orontes at all? When the Euphrates Expedition landed at the mouth of the river its course was at once explored, and it was found to be enclosed within precipitous rocks at a few miles from its embouchure. This line was then at once abandoned, and the material of steam-boats, &c., was conveyed across the country north of the river, but still in the valley of Antioch,

nor did the road thus adopted once cross the river till it reached the bridge of Antioch itself. A line of levels was subsequently carried by Lieutenant Murphy, R.E., and Mr. W. Thomson, from the Mediterranean to the Euphrates, and it appears from that that the elevation between the sea and Antioch is under five hundred feet, as compared with two thousand one hundred feet at Bailan. Dr. Pococke, after visiting the ruins of Seleucia, says: "I crossed the plain southwards about four miles to the Orontes. From the mountains the country *appears like a plain* all the way to Antioch; but about a league to the east from the sea there are low hills almost as far as that city, which have fruitful valleys between them."

In a question, then, of such great importance in the view of outlay, commercial, sanitary, and political advantages, it may fairly be held that the comparison, backed as it is by the authority of eminent engineers, does not hold good, and that no decision ought to be arrived at in a question of such magnitude until a comparison has been made by actual survey of the expenses that would be entailed by a railway carried along the road used for the transport of the material of the Euphrates Expedition (not by the banks of the river) with those of a railway carried over the Bailan Pass, some fifteen or sixteen miles in length. If we read Mr. T. Macneil's figures (Answer No. 398) correctly, the ascent and descent of the Bailan Pass comprise fifteen or sixteen miles of difficult country, whereas it is only fifteen or sixteen from Seleucia to Antioch by a compa-

ratively easy country. It would require a phalanx of civil engineers to satisfy the mind that the expenses of sixteen miles of a rocky pass would be less than a line of sixteen miles over a country not rising to an elevation of five hundred feet. With some forty skew bridges and culverts the comparison might be established, but if it can be shown that these are not wanted, the comparison no longer holds good. From Antioch to the limestone hills by Jisr Hadid—the "iron bridge" and the Pontisfer of the Crusaders*—the country is, as it also is from the eastern foot of Bailan, very level; but by the line from Seleucia to Antioch, in addition to the advantages before enumerated, the town itself would be served, and sixteen miles of the most beautiful country in the world opened to occupation and settlement. So satisfied was Mr. Barker, long time consul in Egypt, with the salubrity of the valley of Antioch, that he retired there upon ceasing his official labours; and Dr. Holt Yates, a physician of experience, proposed to establish a sanitarium there for Anglo-Indians. The pass of Bailan, although the town of Bailan is itself a pleasant and healthy mountain residence, presents nothing to compare with the long valley of Antioch to tempt Europeans to reside there. The latter was the

* Sir John Macneil, in his evidence (Answ. 846), describes this bridge as *the only way* from Aleppo to Scanderoon. "At a toll-bar on one of the old Roman bridges over the Orontes," he says, "I stopped some hours, and I got a list of the amount of traffic which passed through it, and I found, by very careful examination of extracts from it, that there were ten thousand camels, and horses, and mules which passed weekly through that toll-bar. It was the only way in which they could get from Aleppo to Scanderoon, so that there was not a single ton of goods which did not go that way."

site of the ancient Daphne, renowned throughout all antiquity for the charms of its woods and waters, and for the luxuriousness and dissipation entailed by a too prolific nature in a wanton climate.

Captain Charlewood, R.N., acting-lieutenant of the Euphrates Expedition, was called in before the committee at its sitting of July 24, 1871. Captain Charlewood expressed it as his opinion—the result of long practical acquaintance with the country and with the whole of the proposed line—that "the only route which this nation ought to undertake would be from the bay of Antioch, or Scanderoon, down the valley of the Euphrates to the Persian Gulf." Captain Charlewood would also select the south-east end of the bay of Antioch as the starting-point, because, from the experience he has had there, it is, he says, the best anchorage; and moreover, in the prevailing winds (the westerly winds), they do not blow home there as they do in the north of the bay, or even direct upon the Orontes. He preferred the bay of Antioch to that of Alexandretta, because the latter is unhealthy, and moreover, the Bailan Pass, although no doubt it is practicable for the engineers, would be a costly undertaking to get through. Captain Charlewood at the same time believed it to be practicable to render Alexandretta healthy by draining the marshes. The harbour itself is the finest on the coast, and can contain any amount of shipping. On the point proposed at the south-east point of the bay nothing more would be required than a breakwater run out; the anchorage is

excellent, and vessels of the size of the Indian troop-ships would be able to lie there, and to disembark troops. "The line would then pass for about four miles along the valley of Swadea (or Suwaidyah, Seleucia Arabicised), when it would enter the course of the Orontes, and follow it more or less up to Antioch; this last part would be the most difficult of the whole railway." Captain Charlewood, leaving the south-east corner of the bay of Antioch, would apparently carry the line across the bay to the pass of the Orontes; but if such a line was found to be difficult and expensive, it could be carried by a single bridge across the Orontes, below the pass, so as to join the line of the Euphrates transport, and a comparison instituted of the expenses and difficulties attendant upon the road along the banks of the Orontes, and the road followed by the Euphrates transport up the valley of Antioch.

Whilst Mr. Telford Macneil would cross the river Euphrates at or near Balis, a step rendered objectionable by the basaltic pass above Zenobia being open only on the right bank, Captain Charlewood would cross somewhere about Anah, which would be unobjectionable, and probably very desirable. Captain Charlewood would also select Muhammara as a terminus—a point which will be afterwards referred to. Captain Charlewood further bore the most favourable and satisfactory evidence, founded upon experience, as to the character of the native population—those settled on the river. Captain Charlewood assuming that a railway over the Bailan would cost less to carry a railway from the

mouth of the Orontes up to the same point, and assuming also that Alexandretta is made a healthy harbour, would, like Mr. Ainsworth (comp. answer 348 with 613), give the preference to the latter; but this, as has been before shown, is assuming those two points to be settled. A comparison of expense ought to be made as between the pass of Bailan and the line of the Euphrates transport from the Orontes to Antioch, as well as with a line by the pass of the Orontes, and along the banks of that river. Captain Charlewood was also cross-examined upon the character of the country in respect to adaptation to cultivation along the banks of the Euphrates, and his replies were eminently satisfactory. The fact is, however, that this is a point very difficult to explain except in detail. The character of the banks in so long a course varies very much. As a general rule, the trend of the river is, like others, tortuous. The friable rocks which constitute the low uplands, and which are mostly covered with a coarse vegetation, come closer to the river at each advancing angle. Between each promontory thus constituted, and alternately on each side of the river, are grassy alluvial plains called Hawi, which vary in extent at almost every point. These Hawi are all arable land. Many are cultivated, and have their own villages or towns. Sometimes these grassy plains are not mere Hawi, but are of great extent. Such are the plains upon which the Beni Fakal encamp in thousands, north of Balis, and such are the plains near Rakkah, at Deir (town with cultivation), at Kirkisiyah on the Khabur (same), at Mayadin or Rahabah (same), at Wurdi, at Al

Kayim, at Anah (on the right bank), and at many other places. The extent of the grassy lands, again, from the river banks into the interior, varies from half a mile to distances that extended beyond the horizon. Grassy and fertile lands were also met with in the interior. It is again difficult to say how far cultivation might or might not be carried if the lands were irrigated. Below Anah stony soils were cultivated in former times by means of gigantic water-wheels. Below Felujah all is alluvial plain, and the greater part of Babylonia and Chaldæa is open to cultivation. It is safe, however, to adopt as a principle, that the alluvial plains and valleys along the river are the best adapted to settlement and cultivation; that the stony soils clad with a coarse vegetation, commonly called "desert" or "wilderness," are not available; and that the exceptions rather prove the rule than contradict it. There is enough alluvial soil along the banks of the Euphrates to support millions.*

Upon the question of carrying the line by Bir to Dyarbekir, Captain Charlewood at once said he did not like it at all.

661. "Why not?"—"For the reasons which I have

* Mr. T. K. Lynch, speaking of the so-called "desert" between the Euphrates and Damascus, said he had travelled over the country in winter or early spring, and it was all a green plain covered with verdure and crocuses. Travelling over it in July, it was a red kind of clay, with a burnt grass upon it more like a prairie. Again (Answ. 740), "If you could get water, it could be cultivated the whole way to Damascus; it is a red loam, it is not a desert sand."

"The Bedouin tribes," he added, "come up from about the Jebel Shammar in the south, and find pasturage all the way to the Euphrates; they eat it up as they go along. I have seen what you call a desert swarming with people, who come up merely to eat its pasturage." This, it is to be observed, must be at certain seasons; both the Aneizeh in Syria, and the Shammar in Mesopotamia, have their winter and summer pastura-

stated, namely, that for the English nation I think we ought to have our terminus in the Mediterranean, and also on account of the great expense which that Trebizond route would entail, and it would not go through Aleppo."

662. "Are you aware that a suggestion has been made of a line starting from the Mediterranean, and going through Dyarbekir and Aleppo?" — "If the country were settled such a long route might be taken, but the length is the great objection to it. If you want a route to India, I presume that the shortest is the best."

663. "By taking the route through Urfah, and Dyarbekir, and Mosul, would there be greater local traffic?"— "I am inclined to doubt that. I think that more traffic would be got down the bank of the Euphrates; not immediately of course, but ultimately."

This was a very felicitous way of putting it. A railway to Urfah, Dyarbekir, and Mosul would at first have more local traffic than a railway by Balis or Jaber Castle, but not sufficiently so to cover the enormous difference of expenditure or the delay occasioned by such a roundabout way to or from India. The commerce of the three towns above mentioned also already centres in Aleppo, and this would be still more the case when that city had a railway station. It would, in fact, be a fair experiment, if a first portion of the railway was constructed from the Mediterranean to Aleppo as a beginning. A prolongation of the same by the Euphrates Valley would ultimately absorb the traffic and commerce, not only of North and Eastern Syria,

but of all Mesopotamia, Babylonia, and Chaldæa, and also of the countries beyond the Tigris, and of many parts of Persia.

Mr. Thomas K. Lynch, the next examined, made particular allusion to a proposed Russian route through the Caucasus, and by the Caspian Sea to Teheran, and Ispahan, and by Shiraz to Yezd and Kurrachi. As this line is said to be already completed as far as Rostov, north of the Sea of Azov, it may possibly be carried out with the progress of time. If so, however objectionable it may be in a strategetical point of view, it would, in the absence of any other line, be certainly used by wayfarers to and from India, and it would carry the commerce of the East to, or through, Russia.

The next line to which Mr. Lynch called attention, and which he pronounced to be "the Overland Route to India, the very best for England to take up, if money is no object," would go from Constantinople to Amasia, Sivas, and to a place called Arabkir on the Euphrates. "It is," Mr. Lynch continued, "between Sivas and Arabkir that the first difficulties would occur, where the anti-Taurus range of mountains is met with; but Mr. Taylor has discovered, only the year before last, a valley which passes through it, and offers no difficulties whatsoever to the passage of a railway into the plains beyond Moosh, along Lake Van, Khoi, Tabreez, and thence to Telferan," where it would join the Russian line to Kurrachi.

This project appears in its first portion scarcely to have been adopted by a person intimate with details. Amasia, at an elevation of eleven hundred and forty-

eight feet above the sea, is separated from the valley of the Halys by hills rising to two thousand three hundred and ninety-eight feet in height. The town itself is situated in a narrow ravine, with limestone precipices of nearly a thousand feet in elevation. A sketch of the place, given as a frontispiece to W. J. Hamilton's "Researches in Asia Minor," &c., will best give an idea of the very remarkable position of this town, with the tombs of the kings on the face of its rocky precipices. Why then go by Amasia to Sivas, when there is an open road by the valley of the Halys from Hajji Hamsah, on the high road to Constantinople, to that place? A glance at the geological sections which are attached to Mr. Ainsworth's "Researches in Assyria," &c., will show what the country is like between Sivas and Arabkir. Sivas stands itself on a plain three thousand eight hundred and ninety-four feet above the level of the sea. The country rises thence gradually to the Kara Bel mountains (ancient Paryadres), five thousand seven hundred and ninety feet. Thence it descends to cross over two lesser mountain ranges, one four thousand two hundred and fifty, the other four thousand four hundred and fifty, to Divrigi, three thousand one hundred and sixteen feet above the sea. Thence it ascends the rugged Karsi mountains (five thousand six hundred and seventy feet), descends to Berastik to re-ascend the Ayeli mountain, and has another range to cross—Arab-Baba—at an elevation of four thousand eight hundred and eight feet before reaching Arabkir, at an elevation of three thousand five hundred and

thirty feet. Arabkir is itself situated in a valley between the last-mentioned range and the Gul Tagh, having about the same elevation. At the head of the valley are the basaltic mountains called Kara Baba, or "the father of blackness." A detailed description of the country intervening between Sivas and Arabkir will be found in "Res. in Assyria," p. 282 *et seq.*, and in "Travels in Asia Minor," vol. ii. p. 5 *et seq.*

The discovery by Mr. Taylor of a valley passing through this difficult country is a fact unquestionably of the highest importance. As we have as yet had no details, it is impossible to say anything for or against its practicability. It is easy to imagine that the valley of Arabkir may be prolonged on the other side of the Euphrates, by the great plain of Moosh, or Mush, to the Nimrod Tagh, but it is difficult to understand how or where a valley can be prolonged from Sivas to Arabkir. If such a valley exists, it is strange that it is not used as the tatar road, or the post road and highway between Dyarbekir and Malatiyah to Constantinople. The permanency of roads (such as they are) in Asia Minor and Syria, is one of the remarkable peculiarities of the countries in question, and such a peculiarity is owing to the physical conformation of the soil. In very rare instances do the routes of the present day differ from what they were in the time of the Greeks and the Romans. Alexander the Great followed in the footsteps of Cyrus the Younger, when he led his army by the Kulak Boghaz to the pass of Bailan. The Ptolemies and Seleucias—Vespasian, Sapor, Constantius, Heraclius—the Khalifs, the Byzantine Emperors, the Sultans of

Turkey, the Crusaders, all in succession crossed the same passes. A hundred examples might be adduced, founded on the comparison of ancient sites and roads, as given in the Antonine Itinerary and Theodosian tables, with existing towns, villages, or ruins, of the permanency of roads in the East. The writer crossed a narrow pass in the limestone hills between the upper valley of the Orontes and Edlip, where the track was so confined, that horses' and mules' feet seemed to fall into the same holes; indeed, it would have been dangerous had it been otherwise. These holes were several inches, sometimes a foot, in depth; and this in limestone rock as hard as marble, it must have taken ages of traffic to bring about. It is difficult, then, to understand that there should exist an open route from Sivas to Arabkir, and that it should have remained unknown until the year before last. Nothing but the trustworthy sources whence the information is derived would induce one to believe in the thing, which unquestionably must exist in some form or other. The expenses of this line from Constantinople to Ispahan is, it is to be observed, estimated at twenty million pounds, against eight million pounds, the rough estimate of the Euphrates Valley route.

The latter was noticed by Mr. Lynch as his third alternative. He made the terminus the bay of Antioch, not Alexandretta, and carrying it by Aleppo to the Euphrates (why Birijik or Bir is introduced is not quite clear), he would leave the river at Jaber Castle, whence the railway "would form a segment with the Euphrates, and proceed direct across the plain to Deir,

skirting thereby the ruins of Resafa, which is not far from Palmyra; then along the fine lower table-land which runs at the foot of a line of hills which skirt the desert to Rahabah, on the Euphrates."

A first objection to a route as thus proposed is that, although there may be a little saving in distance by thus crossing segments of the interior, instead of merely crossing bends of the river, by carrying the line in the interior you remove it, especially during construction, away from the first of all necessities in such a climate —water. In the second place, if there ever existed the slightest danger from wandering Arabs, these would be more likely to manifest themselves the further you get from the settled banks of the river; and lastly, you take away one of the great objects of the railway, the future settlement of the valley of the Euphrates.

Resafa, the Resapha of the "Notitia Imperii," and probably the Rezeph of 2 Kings, xix, 12, and Isaiah, xxxvii. 12, and subsequently called Sergiopolis, is a well-known site on the high road from Tadmor to Tiphsah, or, in a later language, from Palmyra to Thapsacus, when the Romans constructed the strata or causeway which traversed the Barbaricus Campus, or plain of Siffin, so celebrated for the sanguinary combats fought there between Ali and Moawiyah. By carrying the railway across this plain, the easterly bend of the river from Sura to Rakka—the favourite abode of Harun-ar-Rashid—would be in part saved, but the old commercial route, which from Rakkah followed the Basileus or Bilecha river to Seruj, Haran, and Urfah, and which would be brought to life again by the

railway passing nigh Thapsacus and Rakkah, would be very probably put into jeopardy for the sake of a few miles. Few sites of greater interest by their past history, or of greater importance as capable of once more constituting centres of population, cultivation, and commerce, than Sura, Thapsacus, and Rakkah, present themselves along the whole line of the Euphrates Valley, and to lose all these advantages for the sake of saving a few miles across the stony plain of Siffin and by the ruinous Resafa, does not appear judicious. Rakkah—ancient Callinicum, Dakia, or Chalne of Benjamin of Tudela—would, from its position at the mouth of the old "Royal River" of Mesopotamia, near the ford of Thapsacus, on the highway from Urfah, Harran, and Seruj to Palmyra and Damascus, and in a fertile district, in all probability become as populous and flourishing a city, with a railway close by, as in the times of Harun-ar-Rashid and Al-Mamun. Tiphsah, the extremity of Solomon's kingdom, was also, as Thapsacus, "a great and wealthy town" (Xenoph. "Anab," i. 4; "Arrian Exped. Alex." iii., 17). Sura also, to judge by the extent of its remains, must have been a large place. It was a Roman garrison of some importance under Belisarius, but was taken and burnt by Chosroes I. (A.D. 532). It was afterwards fortified by order of Justinian, and was an episcopal see under the Lower Empire (Procopius., "Bell. Persic.," i. 18; ii. 5; "De Œdificiis Justiniani," ii. 9). Pliny correctly describes its position under the name of Ura, as at the point where the Euphrates turns to the East from the deserts of Palmyra (v. 24, s. 87). It is very question-

able if Sura was not the city, and Tiphsah, "the passing over," afterwards Thapsacus, the ford or bridge over the river. The ruins at Phumsah, as the latter place is now called, are very insignificant compared to the extent of mounds at Sura, and it is scarcely likely that there would have been two cities of importance on the same bank of the Euphrates at such a short distance from one another. The objection to this would be that Pliny notices both Ura and Thapsacus (*nunc* Amphipholis), and that Ptolemy also distinguishes the two, but the pass or bridge may have always been distinguished from the city. The Syrians called Thapsacus "Turmida," and the "Flavia firma Sura" of Cellarius ("Not. Orb. Antiq.," ii. 367), from the "Notitia Imperii Orientales," should, according to Mannert, be read "Flavia Turina Sura." There is an obvious connexion between Turmida and Turina.

But to turn from this digression to Mr. Lynch's proposed deviation at the easterly bend of the Euphrates to Resafa, and "then along the fine lower table-land which runs at the foot of a line of hills which skirt the desert to Ralfabah on the Euphrates." It is difficult to understand if a line along the banks of the Euphrates is meant, or a line in the interior. The basaltic range of the Jebel Bushir, or Abu Shahir, which cross from Palmyra, north of Zenobia, to unite with the Jebel Munkbar and Abd-ul-Assiz hills in Mesopotamia, lie between the two points, and afford no level passage save by the banks of the river.* But Mr. Lynch says

* In the intervening space between Rakkah and Zenobia, the most monotonous portion of the river, and some sixty-four and a half miles in distance,

"direct across the plain to Deir," which latter place is beyond the basaltic hills, and then along "a lower table-land to Rahabah." It is to be observed upon this that the distance from Zenobia to Deir is by the river thirty-eight miles; the distance from Deir to the Khabur is twenty-two miles, "the country a nearly uniform and level plain." ("Res." p. 73). Seven miles beyond is the town and plain of Mayadin, with the old castle of Rehoboth-ha-Nahar, or "of the river" (Gen. xxxvi. 37), now called Rahabah-al-Hamra, or the "Red," and it is difficult to see what can be gained by leaving the banks of the river, except at the limestone and gypsum cliffs of Salahiyah, or Rahabah-al-Malik, twenty-one miles lower down than Rahabah-al-Hamra, where possibly a slight deviation may be less expensive than a tunnel, but that is questionable.

The railway, then, according to Mr. T. K. Lynch, would follow the course of the river (that is, we suppose, from Rahabah-al-Hamra, or Rahabah-al-Malik), "passing Anah to Haditha, on the Euphrates. At Haditha it would cross Mesopotamia to Dokhala, on the Tigris, nine hours above Baghdad. This latter place is, we are told, in steam communication with India. By going to Dokhala you escape all the rivers and canals in the vicity of Baghdad."

The suggestion is well meant, and if the line was carried across the Tigris at Dokhala, it would have firm and level land to Baghdad. (This city is, it is to be

there were two hawi, four forests, or groves of poplar, two sandy points, five tracts of graminæ, or pasture, with villages, twelve marshy districts, chiefly about Abu Saïd, twelve cultivated spots, four quarters of low jungle, eight tracts of artemisia (wormwood), and twenty-seven of tamarix. (Res., &c., p. 70.)

observed, generally spelt Bagdad in the evidence, but the word is Bagh, "the garden," of Dad, a deity or idol). But from Haditha, or Hadisa, the rails would have to be carried over a low, hilly, and stony country to near the Tigris; whereas below the Pylæ, or Gates of Babylonia—the Gates of Paradise of the Talmuds (Neubauer. "Geo. du Talmud," p. 327)—the plain is a flat and level alluvium. The marshes around Akka Kuf unquestionably present a serious obstacle to a direct line from Felujah, at the head of the plain, to Baghdad; but a line could assuredly be found north of the Saklawiyah Canal, or between it and the Abu Gharrib, or Ghuraib, without bridges having to be constructed. This, however, is a matter of detail which would have to be decided by the engineers when carrying out a survey preliminary to the positive laying down of the rails.

Mr. T. K. Lynch explained that the proposed line would go from Dokhala to Mendali, on the Persian and Turkish frontier, thence to Disful. "From Baghdad," he observed, "it is very practicable to get to Ispahan, and to follow the other route to India, or to proceed along the northern shore of the Persian Gulf by Mikran to India. This, strategically, would be the best line for the English government to undertake."

The termini would be, according to Mr. Lynch, in reply to further questions, Kurrachi on one side, and Suwaidiyah, or Seleucia, on the other. In explanation also of the proposed line to Ispahan, Mr. Lynch said: "I think that if the English government guarantee a line in this country, they ought to leave out of question

those lines which eventually must be made by commerce, for instance, to Mosul, Dyarbekir, and Teheran; all those lines must fall in, and must join the main trunk line. Mosul is only one hundred and sixty miles from this very line, and therefore a tramroad or railroad would very soon be made, and they would all be feeders of the direct line."

This is a view of the question before insisted upon, and of the utmost importance to be kept in sight. Mosul, or Moosul, could be brought into connexion with the main trunk line either by the valley of the Khabur, as before noticed, or by the valley of the Tigris. For goods going to Aleppo or Europe there would be great saving of distance by the first line; the latter would best serve the purposes of Baghdad. At all events, till the lines suggested are carried out, which is as yet a remote thing, the usual caravan trade would find its way from Mosul by Bir to Aleppo, or by the Sinjar to Rakkah, or by the Tigris to Baghdad, according to the objects proposed to themselves by the merchants. Mr. Lynch did not think that the funds could be got even for the main trunk line without a guarantee from the British government. The Russian line would, Mr. Lynch also pointed out, be constructed on guarantees from the Russian government, and it might be added that at the present price of guaranteed Russian stock in the money market, there is nothing to prevent that government carrying a railway in any direction it might elect to India, thus turning the trade and transit of the East to their own country. The money would always be forthcoming upon a Russian government guarantee,

a little below par at five per cent., at par at six per cent. This is a consideration worthy of being meditated upon by the British government. Is it precisely worth while, is a fair question to ask, by refusing a guarantee, or declining to enter into a joint guarantee with Turkey, to allow the transit and trade of the East to be monopolised by Russia, and the future tenure of our vast Indian possessions to be jeopardised?

The line from Constantinople by Sivas, Arabkir, Van, and Tabreez to Teheran is, Mr. Lynch tells us, much favoured by the Turkish and Persian governments (Answ. 696), and it "would certainly, commercially speaking, be a paying line" (Answ. 700). "It would monopolise the whole of the Persian trade which now goes by Poli and Trebizond." But so also would the line by the Euphrates Valley, Baghdad, and Disful to Bushire. This would be still more the case if a branch line could be carried across at the most available point in the great mountain range which separates Persia from Turkey, and which becomes more and more practicable the further it trends to the south.

Mr. Lynch bore further testimony to the increase of the trade of Baghdad, which, he says, has quadrupled within the last ten years, and may be estimated at about one million sterling a year. With only a mountain road, it supplies the markets of Kirmanshah and Hamadan, and goods sometimes reach as far as Ispahan and Central Persia. Mr. Lynch, who was opposed to Bussorah as a terminus, was in favour of Suwaidiyah as a port of debarkation on the Mediterranean. "I have been twice over the Bailan Pass," he said, "but still I

would carry the route by the Orontes, as being the most feasible." Upon the subject of the Euphrates Valley route, in reply to the question, "I apprehend that in your opinion the effect of a railway along that country would be to make a population settle there?" Mr. Lynch replied: "I think that a railway along that line would not be practicable, were it not attended by colonies along the lines. The country is magnificent, and it only requires to be opened by railway communication. I look," added Mr. Lynch, "upon the establishment of a railway in those countries as the commencement of a kingdom. Railways, as we know, bring security with them, and when you get security you get an increasing population, and when you get population you get production, and the country itself is a mine of wealth, as far as agricultural and arable land is concerned." Then, again, in reply to a question from Mr. T. Brassey: "Is the country through which the railway would pass at all adapted for occupation by European settlers?"—"As far as the Persian frontier and between Baghdad and Seleucia, certainly. It enjoys a magnificent climate at all times of the year."

The following was also very important evidence with regard to the trade of the country:

787. (Sir Stafford Northcote.) "What business experience have you? You say that you are engaged in business. With what portions of the trade of Baghdad are you acquainted?"—"We first opened a direct trade with the Persian Gulf. We sent sailing ships to Bussorah, and when we found that the Indian government no longer intended to run steamers on the Euphrates,

we organised a company to run steamers on the Tigris as far as Baghdad, and now we have a postal subsidy from the English government to carry the mails from Bussorah to Baghdad; and all the traffic between Bussorah and Baghdad, until very lately, was carried by our steamers."

788. "Is it an increasing trade, or a stationary trade?"—"When we first established trade on the Euphrates, we put on one steamer, and thought that that would be sufficient. Afterwards we were obliged to put on another, and since that time the Turkish local government have put on four, and I believe that they will all have sufficient to do."

789. "Has the traffic been at all affected by the opening of the Suez Canal?"—"I think that it has been rather increased."

Sir John Macneil, in his evidence before the committee, explained that the reason that he had at first given a preference to the port of Suwaidiyah was, because the ascent of the hill up the Bailan Pass was so steep that, at that period, the power of the locomotive engine not being at all so well developed as it is now, the incline could not practically be overcome. Another reason was, that from the necessity of making some excavations, and some deep cuttings, he thought it unadvisable to take that route; and that the harbour of Suwaidiyah might be so arranged as that it would be made a very commodious fort as well as a harbour; and the Turkish government were themselves at the time anxious to lay out their own money in making that harbour. But since that time Mr. Telford Macneil ex-

amined the Bailan Pass a second time, and from the facts which are now known as to the mode of ascending steep inclines, with very unfavourable gradients, such as one in thirteen, and one in fourteen, and one in seventeen, that is now practicable which was before considered totally impracticable.

There was, it has been shown, much difference of opinion upon the site of the terminus on the Persian Gulf; some advocating Kurnah, at the junction of the Euphrates and Tigris rivers; others Bussorah (properly Basrah), or a point near to it, on the Shat el Arab—the estuary of the Euphrates and Tigris; others Muhammara, at the junction of the river Karun with the Shat el Arab; and others, again, Grain or Koweit, on the Arabian side of the Persian Gulf, or Bushire (properly Abû Shahir, "father city"), on the Persian side of the same gulf.

It must be premised, in discussing this particular part of the inquiry, that the mouth of the Euphrates and Tigris is, like that of most other large rivers, more or less a delta. The two rivers unite at Kurnah amid extensive marshes. Some of these marshes are permanent, others temporary, and some are the result of occasional inundations. These, from peculiar circumstances, extend further to the west, on the right bank of the Euphrates, than they do to the eastwards, on the left bank of the Tigris. Between the two rivers, near their junction, is one extensive permanent marsh. The river Euphrates is in places restrained by an artificial embankment, but this sometimes gives way, entailing the inundation of

all the country beyond, especially near Bussorah. The most extensive marshes to the east are formed by the Hawisa tributary to the Tigris. Mr. Loftus has depicted the westerly marshes in his "Travels in Chaldæa," &c. The marshes of the central districts have been described in "Res. in Assyria," &c., p. 108 *et seq.* These marshes, albeit not continuous, are very extensive. Mr. Lynch is not far wrong when he said in his evidence (No. 762) that he supposes there are thousands of square miles of marsh on the lower parts of the Euphrates and Tigris. Yet Mr. Lynch, who dwells with emphasis upon the extent of these marshes, the inundations around Baghdad, and the intolerable nuisance of the Benelaum fly, goes so far as to admit that, although there are great engineering difficulties to be met with, it would be practicable to carry a line of railway by taking it right down between the two rivers on an embankment. Nothing, as before said, is impracticable. It is a mere question of expense. Such an undertaking would involve the expenditure of a vast sum of money, and that apparently needlessly. The same thing may be said with respect to Mr. Telford Macneil's project of carrying the line from Baghdad, across on the right bank of the river Tigris, down to Kurnah (No. 415), and then crossing the Euphrates "before the junction of the two rivers" (No. 418). Kurnah consists in reality of a few Arab huts scattered around an old fort, buried in date-trees, and standing out from boundless marshy tracts. A moment's contemplation of its position at any season of the year

would satisfy the most superficial observer as to its little adaptation in a sanitary, or any other point of view, to be a terminus for a great railway.

The next point advocated was Bussorah. The old city is itself, it is to be observed, situated at a short distance from the Shat el Arab, upon a canal, and General Chesney was careful in explaining that the terminus would be near Bussorah, "just below Bussorah" (No. 69), where the river is very deep, and the embankment—a long line of palm groves—solid. The advantages to be gained by selecting Bussorah are, that it would save over a hundred miles of railway to Grain or Bushire, and that the terminus would be in the Sultan's territories, which is not the case at Muhammara or Bushire. But if the railway were prolonged to Bussorah, it would either require to be kept along the right bank of the Euphrates, with a branch to Baghdad, or if taken to Baghdad, it would have to be taken across the Euphrates again, and thence to be carried round the extensive marshes to the west depicted in Mr. Loftus's map.

Sir Henry Rawlinson and Mr. Telford Macneil both advocated Grain, or Koweit, as a terminus for the Euphrates Valley Railway. This is, indeed, a fine, deep, yet open and healthy bay and roadstead, with a small Arab town inhabited by a well-disposed trading community, but hot and treeless. An objection would present itself to this proposed prolongation of the line in the additional expense to be incurred, but this is represented by many as an advantage, by saving the loss of time entailed by a long sea journey. A more

serious objection presents itself, in the fact that a line to Grain would, like one to Bussorah, require to be carried to the west of the Euphrates, or back again from Baghdad in that direction. In other respects there are no formidable engineering difficulties to the proposed terminus, and it would be within the Sultan's territories. Sir Henry Rawlinson (No. 7) preferred Grain on account of sanitary considerations, and it certainly would be infinitely preferable on that account to Kurnah, Bussorah, or Muhammara, but not to Bushire.

Captain Charlewood expressed a preference for Muhammara as a terminus. This is, indeed, unquestionably the best port on the Shat el Arab. It is situated at the junction of the river Karun, the banks are tolerably high, and when not occupied by huts, houses, or forts, are clad with date-trees. Unfortunately the occupation of this spot, so favoured by nature, has long been a bone of contention between the Turkish and Persian governments. (Fontanier's "Egypt, India, and the Persian Gulf.") And to understand how easily it could be made defensible, it merely requires to peruse Captain Hunt's account of Outram and Havelock's Persian campaign, when the place was assaulted by a British force.

Muhammara is situated in other respects in a marshy spot, and cannot be considered as favourable to settlement by Europeans, or as a healthy place; but Captain Charlewood is perfectly right in saying (No. 630) that a railway could be carried there by passing to the eastward of the marshes. The ground rises to the east-

ward almost immediately beyond Muhammara, going up the Karun, but the railway would have to pass still further eastward, in proceeding to the north, to turn the marshes of Hawisa. The reason why Muhammara was not previously suggested, was because it was a Persian port, and any firman of concession made by the Turkish government would have to be completed by the government of the Shah, making in fact two different treaties of it. The Persian government has, however, shown itself of late so anxious to have the benefits brought about by railway communication introduced into their country, that probably no great difficulties would be met with in coming to an understanding upon this point. There can be no question, however, that if the line is to include any portion of Persian territory, the best terminus would be Bushire, on the Persian Gulf, as proposed by Mr. Lynch and Sir John Macneil.

In the first place, the line would not have to return from Baghdad to the Euphrates. In the second, from Baghdad to Bushire by Susiana, no marshes have to be encountered. The ground is, for the most part, level and firm. There would be some rivers to cross—a mere matter of expense—but, on the other hand, the line would be carried through one of the most fertile provinces of Persia, and one of the most ancient centres of population and civilisation in the country—Disful and Shuster still uphold, with a rather sleepy dignity, the importance of what was once "Shushan the palace," and of Susa which lay

> by Choaspes' amber stream.
> The drink of none but kings.

The plains once dotted by fire-temples, the wealth of which tempted the rapacity of the Macedonian kings, exist, and are still in part populated and cultivated, and, with the exception of occasional barren tracts, villages, water, and cultivation are met with all the way by Bebehan to Bushire. Bushire is also as good a port as Grain, nor would the expenses of making a landing jetty be greater than elsewhere (except, perhaps, at Muhammara, where the goods could be landed on a wooden quay), the town is civilised and accustomed to Europeans, and as the port of Shiraz to European commerce. Above all, were it ever deemed possible to carry on the line by the littoral to Kurrachi, Bushire would be so much gain on the direct road.

A letter has been recently printed by Mr. Edwyn S. Dawes, written at the desire of his Excellency Moshin Khan, advocating a line of railway from Muhammara by the Karun to Shuster, and thence to Ispahan and Teheran, or to begin with light-draughted river steamers as far as Shuster. The only objection to the latter is the existence of rocks and a bund or dam at Ahwaz, of which there is a good drawing in Captain Hunt's little book. The Euphrates steamer could not get over this obstacle; Captain Campbell succeeded in carrying a steamer over at an after period, but it could not be expected to be available at all seasons of the year.

But if the Euphrates Valley Railway was prolonged from Baghdad to Bushire by Disful and Shuster, such a railway would answer all the purposes at first sought for by the Persian government. It would open the whole of the Persian provinces of Khuzistan, Luristan,

and Arabistan, with a Persian port on the gulf at Bushire, and with Baghdad and Europe by the railway. As to a future prolongation to Ispahan, it is easier put on paper than carried into execution. Mesopotamia is, as is well known to travellers, separated from the Persian uplands by a chain of mountains of most difficult access. This is a question that demands a great deal of study before a definite opinion can be arrived at. Baron de Bode, in his "Travels in Luristan and Arabistan," described several roads till then unknown; one by the so-called "Solomon's cleft," which he supposed to be the "Ladder-road" of Diodorus Siculus, and which leads from Shuster by Kumisheh to Ispahan. A line from Ispahan to Shiraz would also lead by Kumisheh, and whether the line from Bushire to Shiraz (a geological section of which is in the "Res. in Assyria," &c.) includes the Klimakes of Alexander's historians or not, it seems very probable that, considering the friable nature of the rocks, the little elevation of the rock terraces, and the possibility of doubling them in places by following the more devious course of transverse valleys, or tunnelling where precipitous, that a branch line from Bushire to Shiraz will eventually prove to be the most feasible, and to best serve the interests of Persia, by opening a highway to Central Persia.*

Mr. Dawes, it is to be observed, does not advocate an

* As such a line would also leave the main trunk line at the head of the Dushistan, or low level littoral plain, somewhere near Dalaki, a considerable saving would be effected in the distance between Bushire and Shiraz.

expensive railway, whereby to open Persia to intercommunication and commerce, but rather a light line of railway, say of three feet gauge, as in the case of the Great American Pacific Railway. and such a railway, it might be added, ought surely to suffice for the Euphrates Valley route also.

There seems, however, to be some difference of opinion among the engineers as to the gauge of the proposed railway. Sir John Macneil advocated a gauge of three feet; Mr. Telford Macneil one of four feet eight inches, or four feet eight and a half inches; and Mr. John Maxwell an Indian gauge of five feet six inches. The question involves the matter of speed and expense. As great a speed, consistent with safety, cannot be got out of a narrow gauge as out of a wide one. But, while a three feet gauge could be constructed to the Persian Gulf for about 6,500,000*l.*, including five per cent. to pay shareholders' interest for their money during the progress of the works, it would cost 8,100,000*l.* by a four feet eight or eight and a half inch gauge, an d400,000*l.* more by a five feet six inch gauge.

Sir John Macneil's description of the kind of carriages he would construct for the transit from the Mediterranean Sea to the Persian Gulf, reads like an extract from the "Arabian Nights' Entertainments." "With the three feet gauge," said this eminent engineer, "the carriages would be so low, the wheels not exceeding eighteen or twenty inches, that no platforms would be required, and no steps to the carriages, or anything of

that kind; the carriages would be quite available from the ground; there would be only nine or ten inches, and they would be so convenient for travelling in the way in which I propose to make them, that the passengers would probably sit at the side as they do in the common omnibuses of London, but with a much wider passage between them, perhaps more than double the width which there is in the London omnibuses. Then the carriages might be of considerable length, resting at each end on bogie platforms, so that there would be no bumping or jolting against the sides, or anything of that kind; they would be perfectly smooth, and having a passage right through, as they have on some of the Austrian railways, a passenger could walk from end to end of the train, and could get refreshment at night without going into the station, and the carriages could be constructed so as to be made almost uniform and perfect as to temperature." Elsewhere, alluding to carriages for troops, Sir John Macneil said he would have them so constructed that the troops "could get into their places with their knapsacks and their rifles, and might in five minutes be accommodated, so as to jump up on the carriage and be quite secure and safe." He would also propose to have the carriages "so that they would be perfectly ventilated; they would be uniform in temperature night and day, and in warm and cold weather just the same; there would be no difficulty or expense in doing it." (Answ. 840.)

It is obvious that with such a line of railway we should have, in addition to the local traffic and the

transit service, no end of adventurous tourists wending their way to the far East, besides persons of a speculative turn of mind, who would wish to have ocular testimony of the advantages of the country for agriculture, settlement, or even building purposes. We should not only have Cook's excursions to the ruins of Babylon and the City of the Khalifs, but we should also have charming villas springing up at Antioch, at Balis, at Rakkah, at Zenobia, at Anah, and at other choice spots.

Mr. Telford Macneil and Mr. John Maxwell have unquestionably been guided in their opposition to this scheme by high conscientious motives, more particularly in regard to speed and safety; but it is also possible that they may have been a great deal influenced by considerations connected with the difficulties which they placed in their own way at starting, by selecting a line with a mountain pass over two thousand feet in elevation. If a line of railway such as Sir John Macneil proposes could be carried along the valley of Antioch to the Persian Gulf at an expense of some 6,500,000*l.*, including five per cent. to pay shareholders' interest on their money during the progress of the works, the scheme recommends itself to the money market upon its own and sole merits. But a government cannot be said to be alive to the true interests of the British empire that would spend over eight millions in order to rescue a few British prisoners and humble a half-civilised Abyssinian potentate, and yet decline to do something in aid of a project to unite Great Britain

with its Indian possessions. A war also involving vast expenditure and great loss of life was inaugurated simply to prevent Russia encroaching upon Turkey; yet is it difficult to get those in authority to countenance a peaceful project, which would do more than the Crimean war ever did to give security to our Indian empire, would facilitate commerce and communication, add to the welfare and prosperity of the two countries, and open other regions to a participation in the advantages of civilisation and well-being.

THE END.

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Railways
OUTLINE MAP
to illustrate the
PROPOSED RAILWAY ROUTES
in
WESTERN ASIA.

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